

Attorney Docket No.: tesa AG 1525-WCG
2100 St-ta-200/256

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant(s) : Dr. Marc HUSEMANN, Dr. Stephan ZÖLLNER, Heiko THIEDE and Dr. Reinhard STORBECK
Serial No. : To Be Assigned
Filed : Herewith
For : LOW-OUTGASSING ACRYLIC PRESSURE-SENSITIVE ADHESIVE COMPOSITONS
Art Unit : To Be Assigned
Examiner : To Be Assigned

February 15, 2002

BOX PATENT APPLICATION
Hon. Assistant Commissioner For Patents
Washington, D.C. 20231

PRELIMINARY AMENDMENT

Sir:

In advance of prosecution, kindly amend the above-identified application as follows and consider the following remarks:

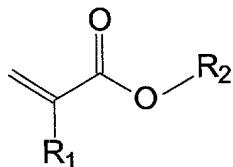
IN THE CLAIMS

Please cancel the previous versions of the following claims and replace them with the following rewritten versions. Marked up copies showing the amendment since the previous versions are annexed as separate pages.

Claim 1 (amended). A pressure-sensitive adhesive composition comprising polymers, copolymers, or both, based at least predominantly on (meth)acrylic acid, derivatives thereof, or both, wherein said composition possesses an outgassing level of not more than 50 $\mu\text{g/g}$ in total, as measured by the tesa method.

Claim 2 (amended). The pressure-sensitive adhesive composition as claimed in claim 1, wherein the polymers, copolymers or both are prepared using at least the following monomers:

(a) from 65 to 100% by weight of acrylic acid derivatives, methacrylic acid derivatives, or both, of the general formula



where R₁ = H or CH₃ and R₂ = an alkyl chain of 2 to 20 carbon atoms,

(b) from 0 to 35% by weight of vinyl compounds containing functional groups.

Claim 3 (amended). A process for preparing a pressure-sensitive adhesive composition as claimed in claim 1, using a polyacrylate solution obtainable by free-radical addition polymerization, which comprises

a concentration step in which

- ◆ after polymerization, an entrainer is added to the polyacrylate solution,
- ◆ the entrainer-admixed polyacrylate solution is passed into an extruder in which said solution is subjected to a carrier distillation,

◆ the concentration thus produces a polyacrylate composition which is processed further from the melt.

Claim 4 (amended). The process as claimed in claim 3, wherein in at least one further step following concentration, a postpurification is conducted by adding the same entrainer again, or a further entrainer, to the concentrated polyacrylate composition and carrying out a further carrier distillation in the extruder.

Claim 5 (amended). The process as claimed in claim 3 or 4, wherein at least the extruder in the concentration step is a corotating or counterrotating twin-screw extruder.

Claim 6 (amended). The process as claimed in claim 3 or 4, wherein steam is used as entrainer.

Claim 7 (amended). The process as claimed in claim 3 or 4, wherein

- ◆ the concentrated polyacrylate composition is applied to a backing material
- ◆ and the polyacrylate composition on the backing material is subjected to a crosslinking reaction.

Claim 8 (amended). The process as claimed in claim 7, wherein crosslinking is carried out using UV light in a wavelength range from 250 to 400 nm, with the proviso that the output of light in the wavelength range from 300 to 400 nm makes up at least 70% of the total irradiated light output.

Claim 9 (amended). An adhesive tape comprising a backing material having a pressure-sensitive adhesive composition as claimed in claim 1 or 2 applied to one or both sides.

Claim 10 (amended). The adhesive tape as claimed in claim 9, comprising a backing material having an outgassing tendency of less than 5 $\mu\text{g/g}$.

Please add the following:

--Claim 11. The pressure-sensitive adhesive composition of claim 1, wherein said outgassing level is less than 10 $\mu\text{g/g}$.

Claim 12. The process of claim 4, wherein said further carrier distillation is conducted at higher temperatures and lower vacuums than the preceding distillation.

Claim 13. The process of claim 8, wherein the light in the wavelength range of 300 to 400 nm makes up at least 90% of the total irradiated light output.--

REMARKS

The Preliminary Amendment is being filed to eliminate multiple dependency, and to conform the claims to conventional format.

For the record, Applicants emphasize that although the claims were amended, and, therefore, might be argued to have been amended for a reason substantially related to patentability, a fair reading of the amended claims will reveal that the departures from

the previous claims were for clarification purposes only, and that Applicants did not narrow the claims in any material respect. Therefore, Applicants submit that the amended claims are entitled to the full range of equivalents.

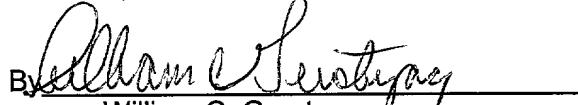
Early and favorable action is earnestly solicited.

ADDITIONAL FEE

Please charge any insufficiency of fees, or credit any excess, to Deposit Account No. 14-1263.

Respectfully submitted,

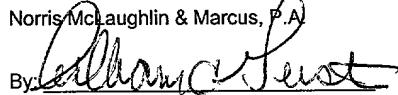
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I hereby certify that this paper is being deposited with the United States Postal Service as Express Mail, Label No. EV015944134US to: BOX PATENT APPLICATION, The Hon. Assistant Commissioner for Patents, Washington, D.C. 20231 on February 15, 2002.

Norris McLaughlin & Marcus, P.A.

By 

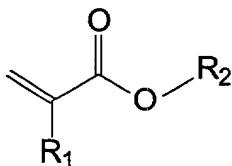
Date: 2/15/02

**MARKED-UP COPIES OF AMENDED CLAIMS,
SHOWING CHANGES RELATIVE TO PREVIOUS VERSION**

Claim 1 (amended). A pressure-sensitive adhesive composition comprising polymers [and/or], copolymers, or both, based at least predominantly on (meth)acrylic acid, [and/or] derivatives thereof, or both, wherein said composition possesses an outgassing level of not more than 50 $\mu\text{g/g}$ in total, [preferably less than 10 $\mu\text{g/g}$, when said composition is] as measured by the tesa method.

Claim 2 (amended). The pressure-sensitive adhesive composition as claimed in claim 1, wherein the polymers [and/or], copolymers or both are prepared using at least the following monomers:

(c) from 65 to 100% by weight of acrylic acid derivatives, [and/or] methacrylic acid derivatives, or both, of the general formula



where $\text{R}_1 = \text{H}$ or CH_3 and $\text{R}_2 = \text{an alkyl chain of 2 to 20 carbon atoms}$,

(d) from 0 to 35% by weight of vinyl compounds containing functional groups.

Claim 3 (amended). A process for preparing a pressure-sensitive adhesive composition as claimed in [at least one of the preceding claims] claim 1, using a polyacrylate solution obtainable by free-radical addition polymerization, which comprises a concentration step in which

◆ after polymerization, an entrainer is added to the polyacrylate solution,

◆ the entrainer-admixed polyacrylate solution is passed into an extruder in which said solution is subjected to a carrier distillation,

◆ the concentration thus produces a polyacrylate composition which is processed further from the melt.

Claim 4 (amended). The process as claimed in claim 3, wherein in at least one further step [further] following concentration, a postpurification is conducted by adding the same entrainer again, or a further entrainer, to the concentrated polyacrylate composition and carrying out a further carrier distillation in the extruder, [preferably choosing in each case higher temperatures and lower vacuums than in the preceding distillation step].

Claim 5 (amended). The process as claimed in [at least one of claims 3 and 4] claim 3 or 4, wherein

at least the extruder in the concentration step is a corotating or counterrotating twin-screw extruder.

Claim 6 (amended). The process as claimed in [at least one of claims 3 to 5] claim 3 or 4, wherein steam is used as entrainer.

Claim 7 (amended). The process as claimed in [at least one of claims 3 to 6] claim 3 or 4, wherein

◆ the concentrated polyacrylate composition is applied to a backing material

- ◆ and the polyacrylate composition on the backing material is subjected to a crosslinking reaction.

Claim 8 (amended). The process as claimed in claim 7, wherein crosslinking is carried out using UV light in a wavelength range from 250 to 400 nm, with the proviso that the output of light in the wavelength range from 300 to 400 nm makes up at least 70%[, very preferably 90%,] of the total irradiated light output.

Claim 9 (amended). An adhesive tape[, in particular for use in the electronics industry,] comprising [a film, applied to one or both sides of] a backing material[, of] having a pressure-sensitive adhesive composition as claimed in [either of claims 1 and 2] claim 1 or 2 applied to one or both sides.

Claim 10 (amended). The adhesive tape as claimed in claim 9, comprising a backing material having [a very low] an outgassing tendency[, preferably] of less than 5 µg/g.